[0036] the control device:

[0037] permits the operation due to the high efficiency recovery condition being satisfied, if a concentration of CO_2 contained in the air around the vehicle is equal to or greater than a predetermined threshold value; and

[0038] prohibits the operation due to the high efficiency recovery condition is not satisfied if the concentration of CO_2 is lower than the predetermined threshold value.

[0039] (7) The control device according to any one of above (1) to (6), wherein

[0040] the vehicle further includes a user input part receiving an operation prohibit instruction for prohibiting the operation, from the user of the vehicle, and

[0041] the control part prohibits the operation even when the high efficiency recovery condition is satisfied, if the user input part receives the operation prohibit instruction.

Advantageous Effects of Invention

[0042] According to the present disclosure, there is provided a CO_2 recovery device with a large amount of recovery of CO_2 with respect to the electric power of the battery consumed by the CO_2 recovery device.

BRIEF DESCRIPTION OF DRAWINGS

[0043] FIG. **1** is a view schematically showing the configuration of a vehicle.

[0044] FIG. **2** is a functional block diagram in a CPU of an ECU.

[0045] FIG. **3** is a flow chart showing a control routine performed at a recovery control part.

[0046] FIG. **4** is a view schematically showing the configuration of the vehicle.

DESCRIPTION OF EMBODIMENT

[0047] Below, embodiments of the present disclosure will be explained in detail with reference to the drawings. Note that, in the following explanation, similar elements will be assigned the same reference notations.

First Embodiment

[0048] First, a control device of a CO_2 recovery device according to a first embodiment will be explained.

[0049] Configuration of Vehicle

[0050] FIG. **1** is a view schematically showing the configuration of a vehicle **1** mounting the control device according to the present embodiment. As shown in FIG. **1**, the vehicle **1** includes an internal combustion engine **10** driving the vehicle **1**, a CO_2 recovery device **20** recovering CO_2, a control device **30**, and a battery **50**. Note that, in the present embodiment, the internal combustion engine **10** is used as the source of power for driving the vehicle **1**, but a motor may also be used as the source of power in addition to the internal combustion engine **10**.

[0051] The internal combustion engine **10** includes an engine body **11**, exhaust manifold **12**, exhaust pipe **13**, exhaust purification device **14**, and muffler **15**. The engine body **11** is arranged inside an engine compartment formed at a front part of the vehicle **1** (left side of FIG. **1**). The exhaust pipe **13** mainly extends below the underbody of the vehicle **1** in the front-back direction of the vehicle **1** from the engine body **11** toward the back part of the vehicle **1**. The exhaust purification device **14** and the muffler **15** are provided at the exhaust pipe **13**.

[0052] The engine body **11** burns fuel at the inside thereof to thereby generate drive force for driving the vehicle **1**. The exhaust gas generated by burning fuel in the engine body **11** flows through the exhaust manifold **12** into the exhaust pipe **13**.

[0053] The exhaust pipe **13** is coupled through the exhaust manifold **12** to the engine body **11**. The exhaust gas discharged from the engine body **11** flows through the exhaust manifold **12** and exhaust pipe **13** and is discharged from an outlet of the exhaust pipe **13** into the atmosphere.

[0054] The exhaust purification device **14** removes NOx, HC (hydrocarbons), CO, particulate, and other substances in the exhaust gas flowing into the exhaust purification device **14**. The exhaust purification device **14** is, for example, a three-way catalyst, NOx storage and reduction type catalyst, or particulate filter. Note that, a plurality of exhaust purification devices **14** may be provided at the exhaust pipe **13**.

[0055] The muffler **15** lowers the temperature and pressure of the exhaust gas flowing through the exhaust pipe **13** so as to reduce the exhaust noise. The muffler **15** is arranged at the downstream side of the exhaust purification device **14** in the direction of flow of the exhaust gas.

[0056] Configuration of CO_2 Recovery Device

[0057] As shown in FIG. **1**, the CO_2 recovery device **20** is provided with a CO_2 recovery part **21**, suction pump **22**, and cooling part **23**.

[0058] As shown in FIG. **1**, the CO_2 recovery part **21** communicates with the exhaust pipe **13** through the communicating path **24**. The CO_2 recovery part **21** communicates with the outside of the vehicle through the exhaust passage **25**.

[0059] The CO_2 recovery part **21** is a device for recovering CO_2 in the gas supplied to the CO_2 recovery part **21** (in the present embodiment, the exhaust gas discharged from the internal combustion engine **10**). In the present embodiment, the CO_2 recovery part **21** is arranged in a luggage space positioned at the back part of the vehicle **1** or below it. Note that, the CO_2 recovery device **20** is a heavy object, therefore is preferably arranged as much as possible at the bottom in the vertical direction in the luggage space.

[0060] The method of recovery of the CO_2 in the gas by the CO_2 recovery part **21** includes, for example, a physical adsorption method, physical absorption method, chemical absorption method, cryogenic separation method, etc.

[0061] The physical adsorption method, for example, is the method of bringing activated carbon or zeolite or another solid adsorbent into contact with the gas containing CO_2 to thereby make the CO_2 be adsorbed at the solid adsorbent and of heating the solid adsorbent (or reducing the pressure around the solid adsorbent) so as to make the CO_2 desorb from the solid adsorbent for recovery.

[0062] If employing the physical adsorption method, the CO_2 recovery part **21** is, for example, configured as a container containing pellet-shaped zeolite. By making the gas containing CO_2 flow through this container, CO_2 is adsorbed at the zeolite.

[0063] The physical absorption method is the method of bringing an absorption solution able to dissolve CO_2 (for example, methanol or N-methyl pyrrolidone) into contact with gas containing CO_2 to physically make the CO_2 be absorbed by the absorption solution at a high pressure and low temperature, and of heating the absorption solution (or reducing the pressure of the absorption solution) so as to recover the CO_2 from the absorption solution.